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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,764	10/22/2001	David A. Markle	3521.162	3825

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EXAMINER

BROWN, KHALED

ART UNIT PAPER NUMBER

2877

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,764

Applicant(s)

DAVID MARKLE

Examiner

Khaled Brown

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19 is/are allowed.
- 6) ☒ Claim(s) 20-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20,21,22,24,25,27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundstrom (US 6399261) in view of Nelson (US 5523193).

Re clms 20,21,24: Sandstrom discloses a method of patterning a workpiece with a lithographic system comprising: supporting a spatial light modulator mask SLM having at least one column of microdevice cells formed thereon, illuminating one of the at least one column on the spatial light modulator mask SLM with pulses of radiation, collecting the radiation with a projection lens, forming a single columnar exposure field on the workpiece with pulses of radiation, and forming a row of adjacent exposure fields by stepping the workpiece by a width of a microcircuit device pattern between exposures (Sandstrom Col 7 lines 19-35). However, Sandstrom does not disclose a reticle mask is used instead of a spatial light modulator mask to produce an image to be projected through the projection lens. Nelson shows that a reticle mask (Nelson 20) is an equivalent structure known in the art to a SLM. Therefore, because these two elements, a reticle mask (Nelson 20) and spatial light modulator mask (Nelson 50), were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a reticle mask as shown in Nelson for the

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spatial light modulator mask disclosed in Sandstrom because it would simplify the lithographic process.

Re clms 5,9,15,16,22,25: Sandstrom discloses the claimed invention except for the range values claimed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the range values for the apparatus of Sandstrom to the claimed values, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Re clm 27: air bearing stage (Col 12 line 24)

Re clm 28: pulse stabilization system (the beam scrambler and coherence control stabilizes the pulse Col 9 lines 59-61)

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandstrom (US 6399261) in view of Nelson and further in view of applicants admitted prior art.

Re clm 23: The combination system of Sandstrom and Nelson discloses the claimed invention except for disclosing the slicing of the wafer after the wafer has been exposed. Applicants admitted prior art discloses that after exposing a wafer it should be sliced (Spec p.2 lines 8-10) because this is one of the normal steps following the exposure process in micro device fabrication. Therefore it would have been obvious to a

person of ordinary skill in the art at the time the invention was made to slice the wafer of Sandstrom following its exposure as disclosed by applicants admitted prior art because this is one of the normal steps following the exposure process in micro device fabrication.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandstrom (US 6399261) in view of Nelson (US 5523193) and further in view of Takiguchi (US 6191843).

Re clm 26: The combination system of Sandstrom and Nelson discloses the claimed invention as noted above including stating that its invention is applicable to fabricating semiconductor devices (Sandstrom Col 1 line 13). However, the combination system of Sandstrom and Nelson does not specifically disclose a magnetically levitated stage. Takiguchi teaches that an invention applicable to fabricating semiconductor devices should use a magnetically levitated stage to increase accuracy (Takiguchi Col 10 line 64). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a magnetically levitated stage in the invention of the combination system of Sandstrom and Nelson because it would increase accuracy as taught by Takiguchi.

Allowable Subject Matter

Claims 1-19 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record fails to disclose or suggest "continuously moving the workpiece...with each... exposure field on the workpiece...formed by a single pulse of radiation" or "exposing a... exposure field with each of the pulses of radiation as the workpiece is moved continuously...to form a row of adjacent...exposure fields on the workpiece" all in conjunction with the rest of the claimed subject matter.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khaled Brown whose telephone number is 703-306-5738. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703-308-4881. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

KB
August 12, 2003



Frank Font
Supervisory Patent Examiner
Art Unit 2877